



Photo finish

An inside look at the STS-26 crew's activities shows that on orbit definitely was the place to be. Photos on Page 3.



Perfect '10'

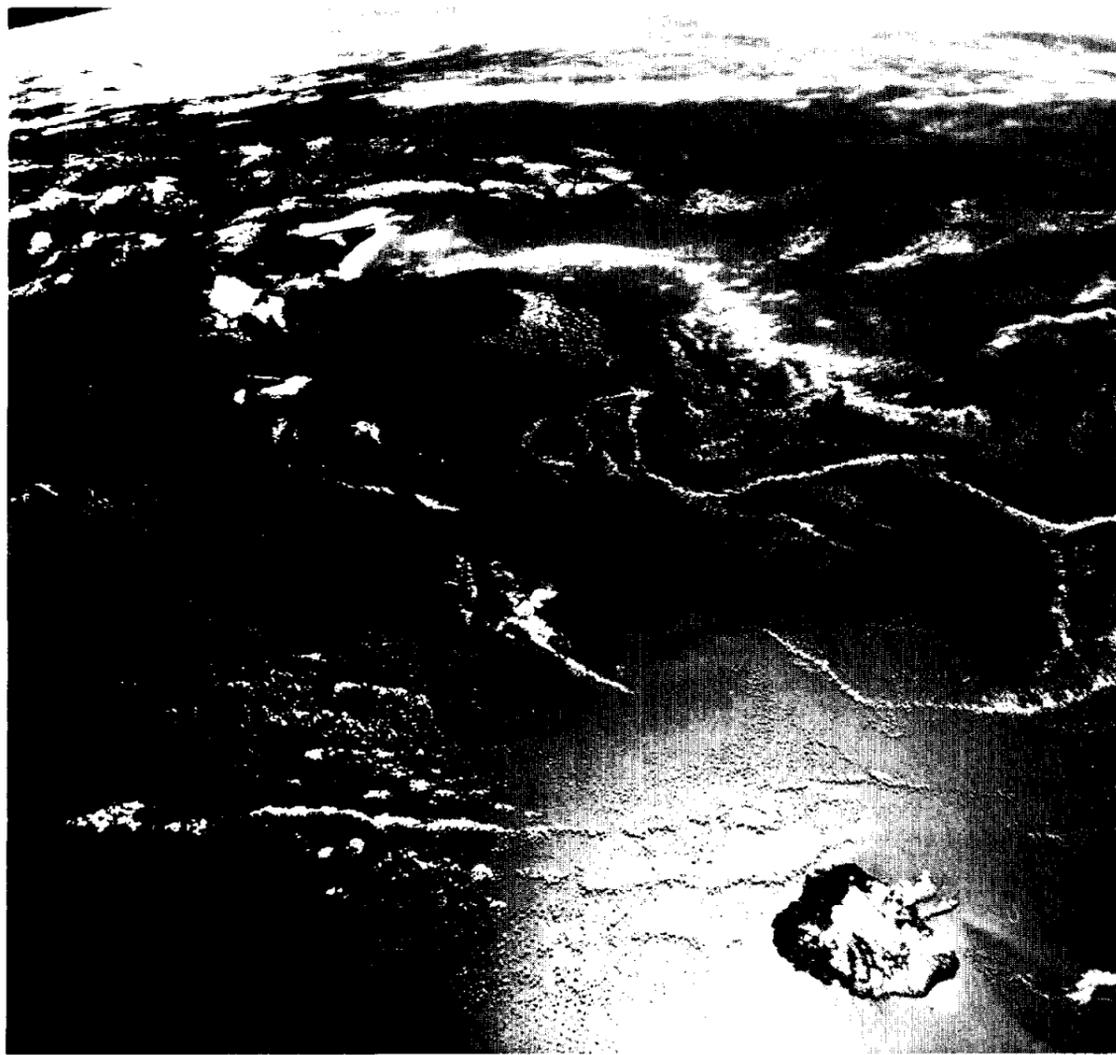
Mission Control gives high marks for *Discovery's* landing at Edwards Air Force Base. Photo on Page 4.

Space News Roundup

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No. 33



The Hawaiian Islands, strewn like jewels across the sea, are showcased in this photograph taken by the STS-26 astronauts and shown during the post-flight news conference Tuesday. From the lower right corner moving up diagonally are the islands of Niihau, Kauai, Oahu, Molokai, Lanai, Maui, Kahoolawe and Hawaii.

Budget allows JSC to seek 120 new hires

JSC's new budget is the best since 1970 with respect to maintaining and increasing the workforce in much-needed areas, Human Resources Director Jack Lister said Friday.

The current fiscal year's budget allows for hiring 120 new employees plus replacement of all positions vacated during the year due to attrition, Lister said. As a result, the center will see its best employment picture since the days of Apollo.

"The center had its first RIF (reduction in workforce) in 1970, and it's been in a nosedive until about three years ago," Lister said. "It hit bottom then and now it's on the way up."

The total civil service force at JSC at the time of the lunar landing peaked at about 4,800. Last year, the workforce had a ceiling of 3,440. But now 120 new positions will be added to that, and, coupled with replacing positions vacated through normal attrition, the center expects some 400 new hires this year.

And JSC is actively taking steps to ensure that those new positions are filled by top-quality personnel, Lister said. "We'll visit about 30 colleges and universities this year, and, of course, we'll keep the student cooperative program up to full strength," he said. "Normally, almost half of our science

and engineering hires come from the co-op program. It's a great feeder program, and we've always maintained it at full strength through the budget ups and downs."

Participants in the cooperative programs number about 100, including student cooperatives, summer interns and others.

Of the 120 new positions, some will be in the Mission Operations Directorate to help offset the loss of military personnel in that area. JSC Director Aaron Cohen is currently in the process of allocating the positions based on center requirements. "Our main concern is to preserve our in-house, civil service technological strength," Lister said.

Overall, a \$10.676 billion budget was approved for NASA this year, but JSC's exact budget, other than personnel, is still being calculated.

The 120 new positions at JSC are the result of a Civil Service Augmentation request made to the Office of Management and Budget (OMB) this year, he explained. The total request for JSC was for 350 new positions, and some or all of the remaining 230 positions are expected to be funded during either the rest of this fiscal year or in fiscal year 1990.

Hauck won't launch again; makes room for others

For four out of five of *Discovery's* crew members, life will now get back to normal—waiting in line for another journey in space.

But STS-26 Commander Rick Hauck, now a veteran of three Shuttle flights, two as commander, announced in Tuesday's post-flight news briefing he would not seek another spaceflight.

"You've got a lot of people waiting in the wings to take other people's places ... I think it's time to let some others have a chance at the left-hand (commander's) seat," Hauck explained. "It's nice to finish a stage of your life on a high note." Hauck, a Navy captain, said his future plans are uncertain at this point, but he will be looking at other positions available within NASA or in the Navy.

Although life will now be back to normal, normal life at NASA will never again be thought

of as routine, the crew said.

"I think we were very fortunate ... that we did launch, although it was an hour and a half late, on the day we were scheduled to," Hauck said. "That will not always happen. I can certainly

foresee more often than not in the next year that we'll pick a launch date, we'll count down to it and something will get in the way. We'll have to adjust. Don't be surprised if for the next launch, things don't go quite so smoothly. Because this isn't a scheduled airline."

"STS-26 was important symbolically because it was just that first step, but we've got to take thousands of steps to get where we're going," Mission Specialist Mike Lounge said. "We have a real strong team that does our flight readiness

review process, a team that gave us a lot of confidence. That's probably what really limits our flight rate—more than moving machinery around, it's how quickly can you make sure you do it right, maintaining that thoroughness."



Pilot Dick Covey took time to praise the performance of *Discovery* on STS-26, and he credited that performance to diligent work by the NASA team. "I

flew on *Discovery* the last time it flew in 1985, and it did exceptionally well then," Covey said. "I think we were very surprised that, with the number of modifications that had been done to so many systems on board the vehicle, we had so few anomalies. And those anomalies were not in those systems that were changed, but in ones that hadn't been changed. As a crew, we

were tickled pink."

The crew members were visiting Washington, D.C. yesterday and today. On Thursday they testified before the House and Senate subcommittees that oversee NASA activities. Today, they will visit the White House and present President Reagan with a flight jacket that will include a nametag and an STS-26 patch flown aboard *Discovery*.

Following that trip, they will spend several weeks visiting various NASA and contractor facilities. "Through the end of November, we hope to get out to a number of the NASA family centers, including the contractors," Hauck said. "We want to go back and thank people for all of their efforts and answer some of the questions they may have about the mission. That's our first obligation—to talk to the people within the NASA community."

Engineering better mousetraps

Exposition shows off many JSC innovations

By James Hartsfield

Brawn and grit may once have carved cities from the wilderness, but the paths into today's frontier are blazed by brains, and the handiwork of today's trailblazers was showcased last week at the Gilruth Recreation Center.

They were all there last week, showing off the brilliant innovations quietly under way throughout the buildings of JSC. They had makes and models and ideas for better mousetraps they'd dreamed up in their labs, and the world beat a path to their doors.

A steady stream of people filed through the Rec Center for three days during the 1988 Engineering Directorate Exposition, looking in amazement at work many had no idea was

being done here. Questions were the order of the day. And the best and brightest of engineers were proud to answer and take a seldom-given chance to explain their work.

"A lot of people get to see the exposition who don't have any idea what we're working on," said Bob Ess, a technical intern in the Advanced Programs Division. "Everybody finds something that catches their eye."

Ess was minding the store in the Aerosciences Branch display, a host of items including wind tunnel models, Orbiter configurations and a story of the birth of the new crew escape pole. "My branch chief, Winston Goodrich, came up with the idea for the pole," Ess explained. "JSC is known for just about everything.

Other centers do the same, do research, but they don't have the variety. We're an engineering center—we take research, use it, build it, make it practical."

Next door, the work of the Crew and Thermal Systems Division proved a show-stopper. Dr. Gene Ungar of the Thermal Systems Branch explained that, although the feet of workers in his branch remain firmly on the floor, weightlessness haunts the halls. They are at work on a system to cool the space station.

"You have to think of things the way you've never thought of them before. Fluids don't act the same in zero-G; they don't fall to the floor," Ungar said. "We could build a cooling system that would be all right down Please see **EXPOSITION**, Page 4.



JSC Photo by Mark Sowa and Benny Benavides

Cindy Draughon, lead organizer of the 1988 Engineering Directorate Exposition, is flanked by Michael Le, left, and Frank Baiamonte, both of the Propulsion and Power Division.



JSC Photo

Rich and Valerie Holtje will be among the Renaissance Festival characters this year.

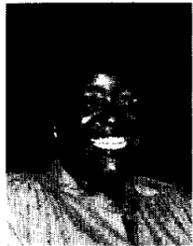
Pair goes medieval at Renaissance fest

If you visit the Texas Renaissance Festival this year, you may bump into a couple of JSC employees—Rich and Valerie Holtje. The Holtjes spend seven weekends out of the year working the 16th century anachronism in Magnolia, Texas. Rich, a senior computer operator for Bendix, and Valerie, a secretary in the Logistics Division's Equipment Branch, dress up in medieval costumes and work among the magicians, jugglers, belly dancers, artists and craftsmen.

Jackson awarded for secretarial excellence

Beverly E. Jackson recently was presented with the Marilyn J. Bocking Secretarial Excellence Award, an honor that includes \$500 cash.

Jackson received the award for her work as secretary to the head of the Program Control Office in the Mission Planning and Analysis Division. Jackson "consistently performs outstanding work, displaying a willingness and motivation in support of the Program Control Office, directorate, and center that is unparalleled in her field." She manages to efficiently organize and balance not only her own workload but also that of the division office while, at the same time, providing secretarial and clerical support to the other three branches of the division. Jackson produces products of outstanding quality and exceptional volume while meeting tight schedules.



Jackson

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JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays:

- General Cinema (valid for one year): \$3 each.
- AMC Theater (valid until May 31): \$2.95.
- Sea World—San Antonio (year):

- children, \$13.56; adults, \$15.96.
- Renaissance Festival (weekends in October through Nov. 15): children, \$4; adults, \$8.
- Halloween Dance, Oct. 29, \$10 per couple.
- Children's Halloween Party, Oct. 31., children (0-12), \$3.50; adults, \$1.

JSC

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2.

Property

Sale: Pasadena/Deer Park, 1980 14' x 60' Redman mobile home, 2-1.5, covered patio deck, shed, skirting, \$14,000 principle or VA. Jim, 280-2226 or Faye, 998-0719.

Rent: Condo at Heavenly Valley skilift, Lake Tahoe, accommodates 6, furnished incl. complete cooking facilities, avail. March 20-26, \$989, \$425. Cooke, 474-5610.

Sale: League City, 3-2-2, cul-de-sac, landscaped, low equity, FHA 10% fixed assum. David, x35464.

Vacation Rental: Lake Livingston waterfront, 3-2, fully furnished, covered decks, pier, excellent fishing, swimming, skiing, new cond. 482-1582.

Lease: 1 BR condo, super clean, W/D, ceiling fan, mini-blinds, 2 balconies, overlooks pool, cov'd parking, no pets, \$330 plus deposit. Mark, x30131 or 332-2416.

Sale: Friendswood/Sun Meadow Estates, wooded lot in established neighborhood, cul-de-sac, bordered by stream & golf course on 2 sides, approx. 245' deep & up to 86' wide, approx. 1.3 acre, util. on site, \$31,500. Doug, x32860 or 486-7412.

Sale: Lakehouse, 2 acres, wooded, private lake, 2.5 mi. from Livingston, 3-2, A/C, furnished, \$45,000. 1-800-356-8824.

Lease: Dickinson, 1 & 2 BR houses and duplexes, remodeled, quiet neighborhood, \$225 to \$350/mo. Jill, 1-713-337-4624.

Sale: 2 BR plus study/2/2D, bright, light, and clean, right outside Credit Union gate, \$98,700. Bob Allgeier, 488-0397.

Sale: Middlebrook, 3-2-2, study, FPL, wet bar, covered patio, large lot, ex. cond., FHA assum. 10%. 480-9363.

Lease: Baywind I condo, 1-1, upstairs, refrig., stove, dishwasher, \$250/mo. plus dep. Bill Gordon, x35023 or 280-8671.

Lease: Baywind II condo, 2-2, upstairs, refrig., stove, dishwasher, FPL, W/D, \$360/mo. plus dep. Bill Gordon, x35023 or 487-6151.

Sale: Friendswood/Sun Meadow, 4-2-2, FPL,

new carpet, 16 x 18 deck overlooking golf course. \$74,500. 482-8614.

Sale: Heritage Park, assume loan, 3-2-2, 1,800 plus sq. ft., oversize lot, immed. occupancy, 333-3992.

Sale: 1984 mobile home, 3-2, ex. cond., \$19,500 and neg., will make your down payment. 1-713-559-2957.

Sale/Lease: Brook Forest, CLC, 4-2.5-2, approx. 2,500 sq. ft., walk to Armand Bayou Elem., 10 min. to NASA, \$129,000, \$1,050/mo. Dave, x37016 or 488-7224.

Cars & Trucks

'69 VW bug, very good running cond., body primed, \$995. John, x36484 or 486-1186.

'81 Plymouth Champ, front end totaled, no eng. or trans., all other parts for sale, Herman, x35095 or 1-409-389-2461.

'59 Mercedes Benz 220S, \$3,000. David, x35464.

'74 BW bug, sunroof, AM/FM, cass., built-in 2-spd. fan, \$1,200, OBO. Shawna, x39355.

'81 Toyota Corolla SR-5 liftback, A/C, P/S, P/B, blue, AM/FM stereo cass. w/eq, new int., 100K mi., ex. cond., \$1,995. Ben, 280-7336 or 482-8998.

'78 Dodge van B-200, 318 V-8, good cond., see to appreciate, priced to sell. x36539 or 333-3700.

'84 Nissan Pulsar, clean, 5-spd., A/C, sun roof, AM/FM cass., \$3,900. Steph Wells, x39810 or 554-4186.

'75 Olds Cutlass Supreme, 2 DR, 350 V-8, A/C, AM/FM cass., orig. owner, clean, completely reliable, \$875. Mike, x34383.

'87 Chevy S-10 Tahoe, like new, A/C, AM/FM cass., A/T, tool box, heavy duty bumper w/trailer hitch, bed liner, much more, \$7,200. 649-5092.

'74 VW Thing, convertible, great hunting vehicle, \$2,200. x31226 or 534-3710.

'81 Chevy Camaro Berlinaetta, T-tops, V-8, 4 bbl., all power, 77K, orig. owner, ex. cond., \$3,900. Paul, 974-7718.

'87 Scamp Pop-up camper, model 240C, ex. cond., sleeps 6, opens up to 23' 10", queen and double bed plus sofa and table area, ice box, 3 burner butane stove, \$3,125. 280-9073.

'80 Pinto, 43K actual miles, AM/FM stereo cass., new battery, sticker & tag, great transportation, \$900. John, x34817 or 480-2344.

Cycles

'86 BMW K75C, 750cc, water cooled, factory warranty, 8,300 mi., BMW hard bags, new tires, \$3,750. John, x36484 or 486-1186.

Boats & Planes

Sailboard, 335 Neil Plyde, 6' sail, great all

JSC

Dates & Data

Today

Intercenter run—JSC employees may participate in the 2-mile or 10-kilometer Intercenter Run this month and receive a free T-shirt. Runners may work out on their own throughout the month of October and turn in their times at the Gulruth Recreation Center office by Oct. 31. For information, contact the Rec Center at x30303.

Return to flight celebration—The eighth annual North Galveston County Chamber of Commerce's Bayou Festival will adopt "A Return to Space Flight Celebration" as its theme Oct. 15-16 at Walter Hall Park in League City. A return-to-flight banquet will be served today at the South Shore Harbour Resort and Conference Center. As part of the festivities, a special award will be presented to Mission Operations Director Eugene Kranz, who has been selected as the "North Galveston County Citizen Most Responsible for the Safe Return to U.S. Space Flight."

EAA badges—Dependents and spouses may apply for a photo I.D. badges from 6:30-10 p.m., Monday through Friday at the Rec Center.

Aerobics and exercise—Both classes are on-going. Sign up at the Rec Center. For more information, call x30303. **Cafeteria menu**—Entrees: seafood gumbo, baked scrod, liver and onions, fried shrimp, meat sauce and spaghetti (special); Vegetables: green beans, buttered broccoli, whipped potatoes.

Saturday

Evening stargazing—The JSC Astronomical Society and Challenger Memorial Park offer you the opportunity to view the moon and planets through telescopes provided by local amateur astronomers from dusk to 9:30 p.m. Challenger Memorial Park is at 2301 W. NASA Boulevard. For more information call Bill Williams, x33848 or 339-1367.

Spaceweek organizational meeting—The Apollo 11 20th anniversary kickoff meeting for Spaceweek activities has been rescheduled for this

weekend. The Spaceweek National Headquarters organizational meeting will focus on organizing a July celebration of the first manned landing on the Moon. The meeting will be from 10:30 a.m. to 2 p.m. Oct. 15 in the Rec Center, Rm. 216-217. Volunteers are welcome. For more information, call the Spaceweek office at 480-0007.

Monday

Cafeteria menu—Entrees: beef and barley soup; beef chop suey, breaded cutlet with cream gravy, grilled ham steak, weiners and baked beans (special). Vegetables: buttered rice, Brussels sprouts, whipped potatoes.

Tuesday

Cafeteria menu—Entrees: celery soup; fried shrimp, pork chop with applesauce, turkey a la king, pepper steak (special). Vegetables: au gratin potatoes, breaded squash, buttered spinach.

Wednesday

NMA meeting—Art Dula, an attorney specializing in space law, will speak on "Negotiating with the Russians for Fun and Profit" at the next meeting of the NASA JSC Chapter of the National Management Association (NMA). Social hour begins at 5 p.m. Oct. 26 at the Rec Center Ballroom. Dinner will be served at 6 p.m. Reservations are due Wednesday; call Ann Hasmond at x32933 before noon. Cost of a guest dinner is \$8. For more information, call Gerald Chapan at x34848.

Weight safety—The next weight safety course required for employees wishing to use the Rec Center weight room, will be from 8-9:30 p.m. Oct. 19. Cost is \$4. For more information, call x30303.

Beginning Bridge—A basic introduction to the game for those who have never played. Meets 5:15-7 p.m. every Wednesday starting Oct. 19 at the Rec Center. Cost is \$10. For more information, call x30303.

Cafeteria menu—Entrees: seafood gumbo; fried catfish with hush puppies, braised beef ribs, Mexican dinner (special). Vegetables: spanish rice, ranch beans, buttered peas.

Thursday

Weight safety—The next weight safety course required for employees wishing to use the Rec Center weight room will be from 8-9:30 p.m. Cost is \$4.00.

Cafeteria menu—Entrees: split pea soup; corned beef with cabbage and new potatoes, chicken and dumplings, tamales with chili, hamburger steak and onion gravy (special). Vegetables: navy beans, buttered cabbage, green beans.

Oct. 26

End user conference—The Data Processing Systems Division will host a DPSD—Supported End User Conference from 9:30-4 p.m. Oct. 26-27 in the Product Demonstration Facility (PDF), Bldg. 12, Rm. 112. End users will have an opportunity to explore software and hardware products they may want to consider purchasing. Manufacturer representatives and product specialists will be available to answer questions, provide tips and distribute add-in products. Products to be demonstrated include: Professional Write, DisplayWrite 4, Harvard Graphics, TELL-A-GRAF, Video Show, Lotus 1-2-3, VP Planner, 132-Column display, dBASE-III Plus, RBase for DOS, extended memory, external storage, multiple host session, concurrent multiple hosts, UTS-40 connectivity to Unisys and category OB/OC workstation. For more information, call the PDF at x37572.

SEDS meeting—The University of Houston-Clear Lake chapter of Students for the Exploration and Development of Space meet at 7 p.m. in Rm. 2-508 of the university's Bayou Bldg. A student presentation will be given followed by a discussion of local business and events. NASA co-op students and all working students are invited to attend. For more information call Peter Lange, x30850.

Swap Shop

around board, must sell, \$600. 480-9802.

'76 VIP 16' tri-hull boat, 115hp Evinrude w/ 2 S.S. props and 2 alum. props, McClain galv. tilt drive on trailer, new and spare tires, bimini top, AM/FM cass. stereo, Lowrance depth finder, good cond., \$2,995, OBO. 280-8855.

'75 14' Caccicraft, 15 hrs. on rebuilt Merc 65, galv. trailer incl., good cond., \$1,000. Chris, 280-7552 or 1-409-740-1468.

'81 Hobie Cat w/trailer, all access., \$2,250 or trade for compact car or pickup. x31226 or 534-3710.

Audiovisual & Computers

AMIGAWORLD magazines, vols. 1 & 2, first eight issues. David, x36647 or 526-3045.

Epson RX-80 Dot Matrix, ex. cond., 100 CPS IBM compatible, \$75; answering machine, \$50; adding machine, \$40. 480-9802.

Attec custom voice of the theater sound reinforcement speaker system, \$1,000. 480-9363.

Functioning Xerox 820 Model I processor card w/power supply, \$45, several S100 cards also avail. Dave, 480-5720.

AT&T 6300 PC, 640K, 30 Meg disk, 1 floppy, mono monitor, all manuals, ex. cond., \$850, OBO; NEC Multispeed Laptop PC, 640K, 2-760K 3.5" floppies, non-backlit supertwist screen, case, manuals, link software, disks, \$875, OBO. Mike, x34378 or 486-4983.

Household

Sliding glass door w/alum. frame, 6' or 9' wide, very good cond., \$95. John, x38178 or 482-5837.

Hotpoint refrig., large, white, good cond., \$85. Michael, 282-5443 or 863-8710.

Antiques: Mahogany table, w/4 chairs, \$250; iron Victorian bed, \$200; 2 kitchen cabinets, \$200 ea.; 3 occasional tables, old caobose woodburning stove, \$150; butcher block (very old), \$250. 482-1582.

King size headboard, solid maple, spindle type, ex. cond., \$125. John, x38178 or 482-5837.

Simmons sofa bed, like new, white fabric lined, textured Naugahyde, firm mattress, \$150. Cookie, 474-5610.

Pair beautiful carved chairs for home or office, ex. cond., \$250 ea.; number of framed pictures/paintings, \$25 up; brass noodle server, \$175. 488-5564.

Queen size bed, incl. mattress, box springs & frame, \$50. Debbie, x32292 or 996-0373.

Westclair lamp, new, hand painted top and bottom light up together or indiv., \$85, OBO; 2 Fenton lamps. Kim, x30274.

Wanted

Reliable used refrig., prefer manual defrost. Mark, x30131 or 332-2416.

Guitar lessons for country & western music. Herman, x35095 or 1-409-389-2461.

'70-'74 Dodge Challenger or Plymouth Barracuda, parts or complete car, also need factory exhaust manifolds for a 426 hemi. Michael, 282-5443 or 863-8710.

Exercise bike, reasonable. Paul, x35794.

To trade Nintendo set w/6 games or Atari set with over 30 games for Sega set with games. Joseph, 326-2187.

Want 0.15 model A/craft engine and 3 or 4 channel R/C equip, also want tools for Briggs & Stratton engines. Bill, 326-2187.

Want an RV to rent for 1 week, around Thanksgiving, must be reliable and should sleep 4-6. Karen, x38850 or Marie, x38875.

'79-'83 Ford or Chev. pickup, 4x4, auto., P/S, P/B. x31604 or 333-3103.

Carpoolers (non-smokers) from Lake Olympia/Quail Valley area to JSC beginning Oct. 11, hrs. 8 a.m.-5 p.m. Dana, x38629 or 664-1402.

Nordic track. 946-3857 or 665-6321.

Refrig. in ex. cond. x30075 or 996-9463.

'81-'85 Ford, Chevy, GMC pickup, 4x4, auto., P/S, short bed. x31604 or 333-3103.

Pets & Livestock

Lovable, hand-raised kittens, 2 mos. old, 3 tabbies and 1 calico, free to good home. Donna, 282-1988 or 337-3838.

Mexican red-headed Amazon parrot, 1 1/2 yrs. old, tame and talking, \$350; hand-raised cockatiels, 8 wks. old, tame, \$40- ea. Troy, 337-3838.

Small male dog, young, neutered. 649-7516. Free "cadillac" cat or small dog house. Boyd, 488-8806 or 482-5274.

Musical Instruments

Baldwin piano, bench, humidifier, \$800. 946-3857 or 665-6321.

Lost & Found

Bicycle missing from Mission Control Center. J. Axford, 483-7671.

Miscellaneous

New Firestone tires & rims, mounted & balanced, 205x15's, \$240, OBO; Leer Macho Ltd. Ed. longbed camper, fiberglass, \$350, OBO. Shawna, x39355.

Mini-14 rifle w/extras, \$300; 3/4 Stratavarius copy violin, \$300; 4 '76 Capri/Mustang mags, \$80; Spectra Physics Class III He Ne laser, \$100. Jim, 280-2226 or 487-4552.

Coleman camping gear, like new, sleeping bags, stove, lantern & more, low prices. David, 538-1600.

Antique military foot locker, black w brass corners, \$95; antique drop leaf table, dark stain, \$225. Kim, x30274.

Florsheim black "Lightweights" men's dress shoes, 10-E, composition sole, soft inside, worn twice, \$20. x31604 or 333-3103.

'87 Aljo travel trailer, 25' front kitchen, sleeps 6, self-contained, A/C, awning, equalizer hitch. x31172 or 332-2089.

Adult wheelchair, folding w/folding foot rests, fits in car trunk, new cond., \$200. 333-4741 or 437-7741.

Girl's clothing, sizes 10-12. x37595 or 488-1359.

4-15" chrome reverse wheels w/lugs, caps, chrome centers, hole pattern, for '83 and previous years, never used, \$150. Susan, x34209.

Sears elec. ice cream freezer, 4 qts., hardwood tub, like new, used twice, \$15. 488-2735.

Fiberglass camper cover, white, for long bed, full size truck. Rob, x33195 or 332-3077.

American Flyer No. 290 train w/coal tender plus tracks plus transformer plus one - 20 Vdc power pack. \$20. Bauch, 333-3382.

Car-top carrier, plastic, approx. 20 cu. ft., beige, \$50. Dave, x32510.

Nagel's, Patrick, commemorative prints, #7, #11, #12, #13, #14, #15, \$150 to \$500. Mike, x32439 or 326-3947.

1" heavy duty industrial drill, \$30; 700-14 tire, mounted, Toyota P/U, no wear, \$35. Pat, 332-1262.

Huey drafting table, Mdl. 2011B, adjustable metal base & tilting drawing surface, K&E horizontal/vertical drafting arm, table size, 38" x 60", \$375. Emery, x39419 or 353-9449.

Golf clubs, tour model System II irons, 1-9, PW, SW, new, peripheral weighted, ex. clubs., \$185. 554-5514 or 282-3827.

Old fashioned small wind-up record player w/records, \$200; old fashioned school desk, \$40. Dorothy, 482-1505.

Custom made knives, all descriptions. Haines, x30425 or 941-2495.

VW Type I part, full doors, some performance, etc.; VW Type I dual progressive webers, used in close to stock set-up, all linkage incl., \$150. OBO. Ray, x30823 or 554-5434.

Travel trailer, ex. for deer lease or fish camp. x37909 or 930-1509.

IBM elec. typewriter, key type, \$85; TV stand w/extra shelf, \$15; microwave metal stand w/ shelves, \$15; typewriter table, \$12.50. 488-5564.

ON ORBIT is the place to be ...

On orbit is the place to be,
Free wheeling on *Discovery*,
Earth rolling by so far below,
Just give her the gas and look at this baby go.

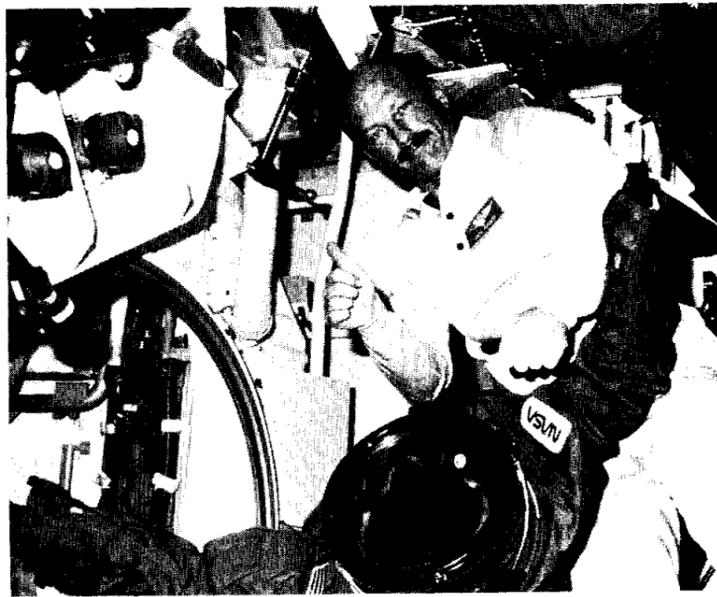
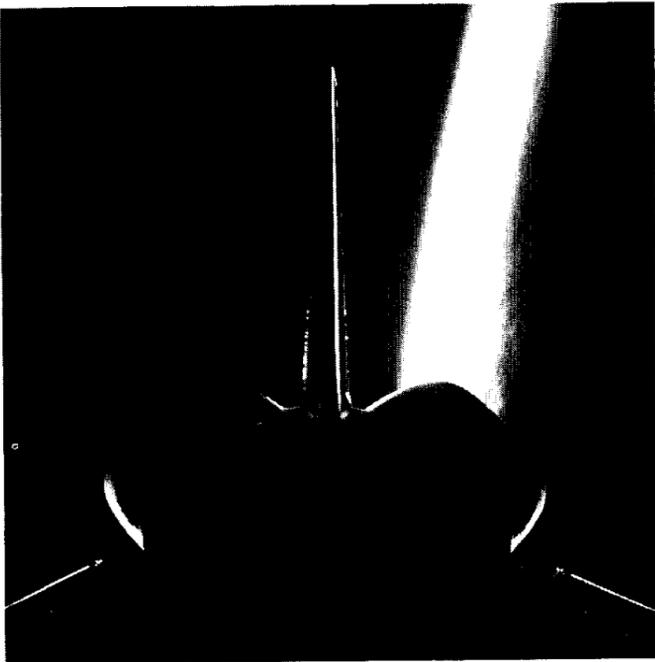
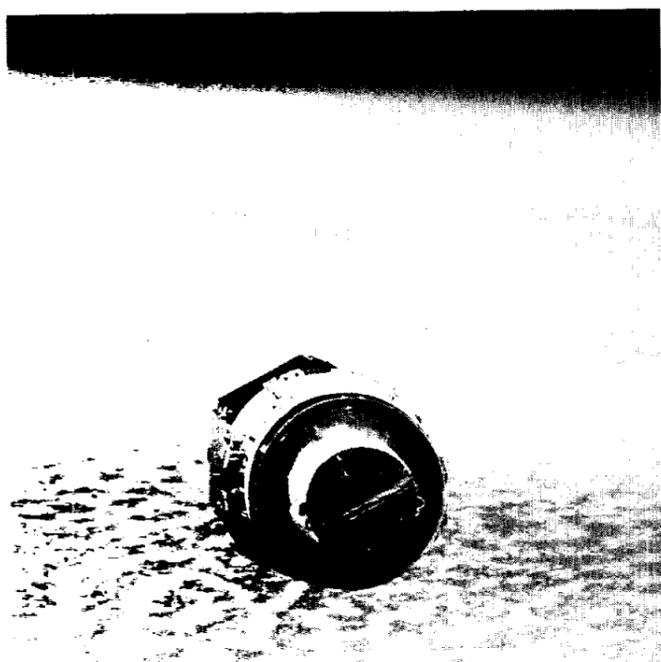
We can't believe we've made it here,
So high above the atmosphere,
We just adore the scenery,
Yea, Houston's great but give me that zero-g.

Hey look out the windows—that's neat!
Captain I'm hungry—let's eat!
Maybe we'll land at White Sands,
Uh-uh—look Ma, no hands.

This is the life,
Oh, what a flight!

Earth orbit we are here!!

—Written by Rick Cahill,
Houston radio writer and producer.
Sung to the tune of "Green Acres".



Clockwise from top right: 1) Mike Lounge chases down a bubble of strawberry drink as Rick Hauck, left, and Dave Hilmers watch; 2) Pinky Nelson photographs one of the Protein Crystal Growth experiments; 3) *Discovery's* vertical stabilizer is silhouetted against an Earth/sunrise panorama; 4) Hauck rehearses putting on the orange ascent/entry partial pressure suit in microgravity; 5) teleprinted messages deluge the middeck, hampering the snack efforts of Hauck, Nelson and Dick Covey; 6) the crew poses for a photographic tribute to the Hawaii tracking station; 7) Hauck uses a 70mm camera to record some new images of Earth from the flight deck; and 8) the Tracking and Data Relay Satellite drifts away from *Discovery*.

Contractors earn Team Excellence Awards

By Kari Fluegel

Lockheed Engineering and Sciences Co. of Houston and the Space Transportation Systems Division of Rockwell International in Downey, Calif., have earned the 1988 JSC Team Excellence Awards, Director Aaron Cohen announced Tuesday.

The Team Excellence Award recognizes aerospace companies demonstrating outstanding dedication and commitment to quality and produc-

tivity in support of U.S. manned spaceflight programs as contractors and partners of JSC.

"Recognition is accorded these companies and their employees not only for their high quality products and services, but for their leadership and commitment to continuous quality and productivity improvement," Cohen said. "It is this type of dedication to continuous improvement which will enable us to sustain our

leadership in manned spaceflight."

Lockheed furnishes JSC with various engineering and science services in support of the Space Shuttle and Space Station *Freedom* programs and provides other advanced technology development initiatives.

Rockwell builds the Orbiter and provides systems integration for National Space Transportation System (NSTS) Engineering and Payload Integration.

The winners were announced at the fifth annual NASA Contractors Conference in Cleveland. Cohen will present the awards in ceremonies at contractor facilities in Houston and Downey. Accepting will be R.B. Young, president of Lockheed Engineering and Sciences Co., and S.Z. Rubenstein, president of Rockwell's Space Transportation System Division.

Presentation of the award coin-

cides with NASA's 30th anniversary and with National Quality Month. "This is an appropriate time to reinforce our dedication to excellence by recognizing the outstanding work of JSC's contractors," Cohen said.

Rockwell's Rocketdyne Division of Canoga Park, Calif., won this year's NASA Excellence Award for Quality and Productivity. The NASA award also was presented this week.

Partnership Award will go to workers who embody quality

The first JSC Quality Partnership Award will be presented during JSC Quality Week Oct. 24-28, recognizing a professional who does not work in the quality field for contributions to quality at the center.

JSC Quality Week, established by the center's Safety, Reliability and Quality Assurance Office (SR&QA), coincides with National Quality Month and NASA Quality Day on Oct. 25.

The first Partnership Award will be presented by JSC Director Aaron Cohen. Subsequent awards will be presented quarterly.

JSC employees may nominate a person who has made significant contributions to quality. Any professional employed by NASA, NASA contractors, or involved with NASA-related contracts at JSC will be eligible. Employees associated with SR&QA organizations are excluded.

Nominations including the name of the individual and a brief summary listing the areas of outstanding contributions should be forwarded to T.J. Adams, chief of the Quality Assurance and Engineering Division, Code ND, by Oct. 20.

NASA Quality Day will feature a full-day seminar at NASA Headquarters involving field centers and the NASA Excellence Award recipients. The seminar will be broadcast on NASA Select television from 7:30 a.m. to 3 p.m. Oct. 25.

Cohen, JSC Deputy Director P.J.

Weitz and Charles Harlan, director of SR&QA, are scheduled to participate in the seminar.

In proclaiming NASA Quality Day, NASA Administrator James C. Fletcher recalled that for 30 years NASA has vigorously pursued the charter established by Congress to realize the potential practical benefits that can be gained from aeronautical and space research and development.

"The occasion of NASA's 30th anniversary provides the opportunity to reflect on our past achievements and to rededicate ourselves to excellence for the future," he said. "NASA's greatest strength has always been its people. Our enthusiasm to accept complex challenges and our ability to work together to overcome difficult obstacles will fuel our ongoing quest for excellence."

"The purpose of NASA Quality Day, Oct. 25, 1988, is to reaffirm our dedication to excellence and to recognize our reliance on the creative and imaginative contributions of our entire workforce."

In addition to the award and seminar, JSC civil servants will receive posters and lapel pins bearing the theme "Quality—A Commitment to the Future" to use as reminders to constantly strive for quality, said Alma Martin of the Management Analysis Office.



HIGH MARKS—Above, three astronauts and a flight activities officer in Mission Control give a more than perfect "10" to *Discovery's* recent landing. From left are CAPCOMs Blaine Hammond, J.O. Creighton and Frank Culbertson, and FAO Neil Woodbury. At right, JSC Director Aaron Cohen and three former center directors are all smiles in the Mission Control viewing room. From left are Gerald Griffin, Chris Kraft, Cohen, and Jesse Moore.



JSC Photos

Intercenter Run competition heats up

JSC's Tracking and Communications Division is extending its head-on Intercenter Run challenge with the Advanced Programs Office to the rest of the center this month.

"Usually the Advanced Programs Office (ED) team has the best participation on site, however, this season our division will challenge other divisions that may want a piece of the action," said Bill Jordan, acting technical assistant for the Tracking and Communications Division (EE).

"A few years ago a trophy used to be awarded for the best participation and we intend to do the same this year," said Jordan.

"They're wanting to beat us out, but we're not going to let them," said Georgia Everett of Advanced Programs.

Intercenter Run points are awarded within a division for the number of participants and the Gilruth Recreation Center is currently accepting points gained by employees who have

walked, run or hobbled a two-mile or 10-kilometer run this month.

JSC employees may pick up a form from the Rec Center and walk or run at their leisure. Employees will be responsible for timing themselves and filing their form at the Gilruth.

Agencywide, Goddard Space Flight Center often gets the most points, but JSC won first place in the two-mile leg in April '87 and JSC runners and walkers are shooting to perform as well this time around.

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Health Fair details open season options

Open season for the Federal Employees Health Benefits Program will be Nov. 14 through Dec. 9.

To assist JSC employees in making open season changes, the Human Resources Office is sponsoring a one-day Health Fair from 9 a.m. to 2 p.m. Nov. 16 in the ballroom of the Gilruth Recreation Center.

Anyone with questions should call the Employee Services Section, x32681.

Exposition gives engineers chance to show off

(Continued from Page 1)
here, but it just flat wouldn't work up there. To me, that's exciting."

The Thermal Systems Branch has been working on a two-phase thermal control system for space station for several years, and it's a system that's "at least a generation ahead of the one used on the Space Shuttle," added Aerospace Technologist Eva Ferris. The systems they've developed are now being tested in the giant vacuum chamber in Bldg. 32. Also, strung from the ceiling, a giant mockup of a radiator panel for space station demonstrated an element that is to be tested in space on STS-29.

The exposition is a "great way of letting other people at the center know what you're doing," Ungar said. "Sometimes I feel like the stuff I do is so specialized people just aren't interested in it. So this is really nice."

At the Special Projects Branch's display, Larry Li demonstrated the "smart hand," a four-fingered robot hand that's eerie in the way it mimics human movement.

"You get some pretty interesting questions sometimes; they make you

think," Li said as he surveyed the crowd. "They're good, fundamental. It's almost like a test of your philosophy."

The robot hand is destined to become a helper for astronauts, as part of EVA Retriever, the robotic space tool-fetcher that greeted patrons as they entered the exposition, Li said. "This exposition gives me a chance to see other divisions, to see what they're doing, to see how it relates to my work," he added.

But at center stage were the space-suits of the Crew Systems Branch, among them the Mark 3, the new high-pressure spacesuit hoped to become the space equivalent of daily work clothes. Phil West spent the exposition climbing in and out of the Mark 3 as Susan Schentrup explained the suit to a constant audience.

The demonstrations are a learning experience, she said. "Every time I see someone operate it," Schentrup said, "I see something I didn't know."

"An awful lot of work goes into this expo. Everybody spends so much time getting ready for it," said West. "But it's well worth it."

In the ballroom, the Tracking and Communications Division showed off a variety of projects dealing with communications via light, and a model of a three-dimensional television had a crowd of 3D-glassed onlookers reminiscent of a famous photograph. The television system uses two cameras, cameras that eventually are hoped to be moveable "just like eyeballs," said Erik Cook of the Television Systems Section.

"We had this at the expo two years ago, but the screen was real flashy and didn't look too good. Now we've got it much better."

The next step, he said, is to make the television in color, and then to have astronauts use it in Bldg. 9A, evaluating the system in tandem with the Orbiter's mechanical arm. "The crew wanted something that would give them more depth perception," he explained.

"I built a lot of this, and I don't get tired of showing it off. It's great," Cook added.

On other tables were displays of infrared light communications, and a model of a possible fiber optic data

transmission system that could pass through windows, without disturbing the glass.

"This exposition is designed to spark ideas," said Bill Jordan, acting technical assistant in the Tracking and Communications Division. "Sometimes the paperwork that flies across people's desks, they don't read it. But they come out here and see it and say, 'Wow, I can use that. I've got just the thing that will fit.'"

Previously, the exposition was held annually, but this year's was the first in two years. The change was a good idea, Jordan said. "Almost everything out here is new work," he explained. "A lot of it's our younger engineers, bringing out their new projects."

One of those was the Exercise Countermeasures Project from the Artificial Intelligence Project Office in the Life Sciences Division. The project includes an exercise bike with a built-in computer that can adjust the difficulty of pedaling.

"The computer adjusts the workload based on a person's age and heart rate," explained Wanda Pratt, who was overseeing the display. "It

keeps you in your target workload zone." Also, a video screen provides a simulation of roadwork to help motivate the bike riders.

The bike, a prototype for a space station model, was a crowd favorite. "A lot of people seem excited about it," Pratt said. "They want things like this in their own gyms."

The entire engineering directorate participated in the exposition, a total of six divisions and two offices. The displays took a tremendous amount of effort from participants, and the lead organizer of the event was engineering's Administrative Officer Cindy Draughon.

Near the door, the Management Support Office had an exhibit. The office manages the engineering support contract, overseeing the communications that keep the vast, varied areas of engineering work at the center in touch with one another.

"We're a small office, but we felt we needed to be in the exposition," explained Management Assistant Valerie Thompson. "It's just because a lot of people ask us what we do."